

## SYMBOL CONSTELLATIONS HAVING SECOND-ORDER STATISTICS WITH CYCLOSTATIONARY PHASE

Abstract:

The present invention is a machine or method used in digital communications. Symbols are selected in periodic fashion from at least two different symbol constellations. At least one of the symbol constellations has a non-conjugated second moment not equal to zero. The non-conjugated second moment is a second-order statistic. Symbol selection leads to second-order input statistics having cyclostationary phase, and thus to second-order output statistics having cyclostationary phase. These statistics can be used for low-complexity identification and equalization of both linear and nonlinear channels. The invention allows for low-complexity identification and equalization of linear channels and of nonlinear channels without requiring constant-modulus constellations.